

*costvar*,  $c$   
*termvar*,  $x, y, z, f$   
*baseAttackVar*,  $b$   
*index*,  $i, j, k$   
 $A, B, C, E$

$::=$   
 $|$   $b$   
 $|$   $A \odot B$   
 $|$   $A \sqcup B$   
 $|$   $A \triangleright B$   
 $|$   $A \multimap B$   
 $|$   $A \circ\multimap B$   
 $|$   $(A)$

$T$ 
 $::=$   
 $|$   $b$   
 $|$   $T_1 \odot T_2$   
 $|$   $T_1 \triangleright T_2$   
 $|$   $T_1 \sqcup T_2$   
 $|$   $(T)$

$\Gamma, \Delta, \Theta, \Phi, \Psi$ 
 $::=$   
 $|$   $\cdot$   
 $|$   $A$   
 $|$   $\Gamma, \Gamma'$

$\boxed{\Gamma \vdash^T E}$

$$\begin{array}{c}
\frac{}{b \vdash^T b} \text{ T\_VAR} \\
\frac{\Gamma \vdash^T T_1 \quad \Delta \vdash^T T_2}{\Gamma, \Delta \vdash^T T_1 \odot T_2} \text{ T\_PARA} \\
\frac{\Gamma \vdash^T T_1 \quad \Delta \vdash^T T_2}{\Gamma, \Delta \vdash^T T_1 \triangleright T_2} \text{ T\_SEQ} \\
\frac{\Gamma \vdash^T T_1 \quad \Delta \vdash^T T_2}{\Gamma, \Delta \vdash^T T_1 \sqcup T_2} \text{ T\_CHOICE}
\end{array}$$

$\boxed{\Theta; \Phi; \Psi \vdash E}$

$$\begin{array}{c}
\frac{}{\cdot; \cdot; E \vdash E} \text{ E\_VAR} \\
\frac{}{\cdot; E; \cdot \vdash E} \text{ E\_VARCC} \\
\frac{}{E; \cdot; \cdot \vdash E} \text{ E\_VARC} \\
\frac{\Theta_1; \Phi_1; \Psi_1 \vdash E_1 \quad \Theta_2; \Phi_2; \Psi_2 \vdash E_2}{\Theta_1, \Theta_2; \Phi_1, \Phi_2; \Psi_1, \Psi_2 \vdash E_1 \odot E_2} \text{ E\_PARAI} \\
\frac{\Theta_1; \Phi_1; \Psi_2 \vdash E_1 \odot E_2 \quad \Theta_2; \Phi_2; \Psi_1, E_1, E_2, \Psi_3 \vdash E_3}{\Theta_1, \Theta_2; \Phi_1, \Phi_2; \Psi_1, \Psi_2, \Psi_3 \vdash E_3} \text{ E\_PARAE} \\
\frac{\Theta_1; \Phi_1; \Psi_1 \vdash E_1 \quad \Theta_2; \Phi_2; \Psi_2 \vdash E_2}{\Theta_1, \Theta_2; \Phi_1, \Phi_2; \Psi_1, \Psi_2 \vdash E_1 \sqcup E_2} \text{ E\_CHOI}
\end{array}$$

$$\begin{array}{c}
\frac{\Theta_1; \Phi_2; \Psi_1 \vdash E_1 \sqcup E_2 \quad \Theta_2; \Phi_1, E_1, E_2, \Phi_3; \Psi_2 \vdash E_3}{\Theta_1, \Theta_2; \Phi_1, \Phi_2, \Phi_3; \Psi_1, \Psi_2 \vdash E_3} \quad \text{E\_CHOIE} \\
\\
\frac{\Theta_1; \Phi_1; \Psi_1 \vdash E_1 \quad \Theta_2; \Phi_2; \Psi_2 \vdash E_2}{\Theta_1, \Theta_2; \Phi_1, \Phi_2; \Psi_1, \Psi_2 \vdash E_1 \triangleright E_2} \quad \text{E\_SEQI} \\
\\
\frac{\Theta_2; \Phi_1; \Psi_1 \vdash E_1 \triangleright E_2 \quad \Theta_1, E_1, E_2, \Theta_3; \Phi_2; \Psi_2 \vdash E_3}{\Theta_1, \Theta_2, \Theta_3; \Phi_1, \Phi_2; \Psi_1, \Psi_2 \vdash E_3} \quad \text{E\_SEQE} \\
\\
\frac{\Theta; \Phi; \Psi_1, E_1, E_2, \Psi_2 \vdash E}{\Theta; \Phi; \Psi_1, E_2, E_1, \Psi_2 \vdash E} \quad \text{E\_EXP} \\
\\
\frac{\Theta; \Phi_1, E_1, E_2, \Phi_2; \Psi \vdash E}{\Theta; \Phi_1, E_2, E_1, \Phi_2; \Psi \vdash E} \quad \text{E\_EXC} \\
\\
\frac{\Theta; \Phi_1, E_1, \Phi_2; \Psi \vdash E_2}{\Theta; \Phi_1, E_1, E_1, \Phi_2; \Psi \vdash E_2} \quad \text{E\_DUP} \\
\\
\frac{\Theta; \Phi_1, E_1, E_1, \Phi_2; \Psi \vdash E_2}{\Theta; \Phi_1, E_1, \Phi_2; \Psi \vdash E_2} \quad \text{E\_CONT} \\
\\
\frac{\Theta; \Phi; \Psi, E_1 \vdash E_2}{\Theta; \Phi; \Psi \vdash E_1 \multimap E_2} \quad \text{E\_IMPI} \\
\\
\frac{\Theta_1; \Phi_1; \Psi_1 \vdash E_1 \multimap E_2 \quad \Theta_2; \Phi_2; \Psi_2 \vdash E_1}{\Theta_1, \Theta_2; \Phi_1, \Phi_2; \Psi_1, \Psi_2 \vdash E_2} \quad \text{E\_IMPE} \\
\\
\frac{\Theta_2; \Phi_1; \Psi_1 \vdash E_1 \multimap E_2 \quad \Theta_1; \Phi_2; \Psi_2 \vdash E_2 \multimap E_3}{\Theta_1, \Theta_2; \Phi_1, \Phi_2; \Psi_1, \Psi_2 \vdash E_1 \multimap E_3} \quad \text{E\_COMP} \\
\\
\frac{\Theta_1, \Theta_2; \Phi; \Psi \vdash E \quad \Delta \vdash^T T}{\Theta_1, T, \Theta_2; \Phi; \Psi \vdash E} \quad \text{E\_WEAKS} \\
\\
\frac{\Theta; \Phi_1, \Phi_2; \Psi \vdash E \quad \Delta \vdash^T T}{\Theta; \Phi_1, T, \Phi_2; \Psi \vdash E} \quad \text{E\_WEAKC} \\
\\
\frac{\Theta; \Phi; \Psi_1, \Psi_2 \vdash E \quad \Delta \vdash^T T}{\Theta; \Phi; \Psi_1, T, \Psi_2 \vdash E} \quad \text{E\_WEAKP} \\
\\
\frac{\cdot \vdash^T T_1 \odot (T_2 \triangleright T_3)}{\cdot; \cdot; \cdot \vdash (T_1 \odot (T_2 \sqcup T_3)) \multimap ((T_1 \odot T_2) \sqcup (T_1 \odot T_3))} \quad \text{E\_DISTPARA1} \\
\\
\frac{\cdot \vdash^T T_1 \triangleright (T_2 \sqcup T_3)}{\cdot; \cdot; \cdot \vdash (T_1 \triangleright (T_2 \sqcup T_3)) \multimap ((T_1 \triangleright T_2) \sqcup (T_1 \triangleright T_3))} \quad \text{E\_DISTSEQ1} \\
\\
\frac{\cdot \vdash^T (T_2 \triangleright T_3) \odot T_1}{\cdot; \cdot; \cdot \vdash ((T_2 \sqcup T_3) \odot T_1) \multimap ((T_2 \odot T_1) \sqcup (T_3 \odot T_1))} \quad \text{E\_DISTPARA2} \\
\\
\frac{\cdot \vdash^T (T_2 \sqcup T_3) \triangleright T_1}{\cdot; \cdot; \cdot \vdash ((T_2 \sqcup T_3) \triangleright T_1) \multimap ((T_2 \triangleright T_1) \sqcup (T_2 \triangleright T_1))} \quad \text{E\_DISTSEQ2}
\end{array}$$

Definition rules: 27 good 0 bad  
 Definition rule clauses: 50 good 0 bad